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RECENTLY PUBLISHED RESEARCH OF THE LENINGRAD MILITARY ELECTROTECHNICAL ACADEMY

"The Control of Cathodic-Anodic Processes," A. F. Okatov, Leningrad Mil Electrotech Acad

"Zhur Obshch Khimii" Vol 16, 1946, pp 379-94

Okatov discusses his concept of electrochemical processes, which can be summarized as follows. All chemical processes proceeding with formation and discharge of ions are cathode-anodic processes; of all possible processes in a given system, only those actually take place which provide for the most positive value of the work of discharge or of the work of formation of a mole of the product; the work of cathodic processes is taken as positive, that of anodic processes as negative. The process as a whole proceeds spontaneously only if its work is positive (E is greater than 0). The conclusions drawn from this concept are: compounds of univalent Cu can exist only in the dry state or as complex compounds; the ion of univalent Cu is Cu_2^{++}; ions of univalent Au are Au_2^{++}; gold halides of univalent Au can exist in aqueous solutions only in insignificant concentrations, while among the trivalent Au halides only $AuCl_3$ is stable in aqueous solution; the ion of univalent Hg is Hg_2^{++}; oxidizing agents are substances which have the maximum value of work of reduction among all other possible cathode processes in the system; reducing substances are materials, the maximum work of oxidation of which is most positive among all the possible anode processes in the system.

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